

TYPES IN THE SPECIES-GROUP. Z.N.(S.) 1571

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At the XVI International Congress of Zoology in Washington in 1963, the Commission had before it two proposals relating to types in the species-group. The first of these (Case No. 12), put forward by Professor Hobart M. Smith, asked for a reconsideration of the categories of type-specimens (*Bull. zool. Nomencl.* 20 : 56-60) and was rejected; the second (Case No. 17) asked for a relaxation of the rules concerning neotypes (dos Passos, *Bull. zool. Nomencl.* 20 : 71-2) and was referred to the Secretariat so that Article 75 could be re-drafted as a Declaration. Any consideration of neotypes, however, soon leads to a consideration of the type-series, all specimens in which must, it appears, be lost or destroyed before a neotype can be designated. Close examination of Articles 72, 73 and 75 reveals not only internal inconsistencies in the wording, but also confusion between the taxonomic and nomenclatural implications of the word "type". The conclusion is that no improvement can be made to any part of the three articles referred to unless they are viewed as a comprehensive whole.

2. Simpson (1940) clearly expounded the differences between the three meanings for which the word "type" is used in zoology: types may be (a) a sample from which the characters of a group of individuals or a population are estimated; (b) a standard of comparison between samples, or (c) name-bearers. Nomenclature is, strictly speaking, only concerned with types as name-bearers; but a name-bearer only serves its purpose (as an "onomatophore" of Simpson) if it is also suitable to serve as a sample, or as part of a sample, of a population and as a standard, or as part of a standard, of comparison (Simpson's "hypodigm"). Moreover, whereas the hypodigm is fluid and changes according to the view of each successive student of a species, the name-bearer is unique, permanently fixed and cannot change. This concept of the unique unchanging name-bearer carries with it the potential risk that for any species advances in taxonomic work may render the specimen unsuitable as part of a hypodigm, so that the name degenerates into a *nomen dubium*. This has an important bearing on the question of neotypes.

3. It seems to me that the Code is capable of improvement in three respects. First, the definition of "type-series" in Article 72b clearly confuses the onomatophore with the hypodigm; it should be rewritten so as to remove this confusion. Secondly, no clear procedure is laid down for dealing with the case in which a holotype or lectotype is destroyed but paratypes or paralectotypes (originally syntypes) survive. Thirdly, no guidance is given on the question of types that have been demonstrated to be taxonomically useless.

4. The defect of Article 72b is that it defines the type-series as including "all the specimens on which an author bases the species..." (with stated exceptions), in other words, as being identical with his hypodigm. A zoologist

then faces the difficulty of trying to identify and, if he is conscientious, bring together all the surviving specimens of this series. Where all the specimens composing the type-series are listed with their depositories and registered numbers, this may present little difficulty. At the other extreme, it may be evident from internal evidence that the author saw a number of specimens, but extremely difficult to find any clue as to how many they were or to their present possible whereabouts. He may also list a number of references in synonymy without explaining whether he has examined the specimens on which those references are based or not. In such circumstances it may be impossible to delimit the type-series with any confidence. Although the type-series (considered as a group of potential onomatophores) may coincide with the original hypodigm, it is not identical with it. Where no onomatophore has been originally designated (i.e. where no holotype exists), and where the extent of the original hypodigm cannot readily be determined, the range of specimens from which a lectotype can be designated, or the loss or destruction of which must be proved before a neotype can be designated, ought to be conventionally restricted in some way. In other words, a means ought to be provided for considering only certain specimens as qualifying for the nomenclatural category of "syn-type".

5. It is, however, not easy to see how to circumscribe such a restricted category of syntypes in a way that gives the zoologist a practical problem to solve without at the same time unduly restricting his choice. Yet while it may be impossible to say with confidence what was the sum of the specimens examined by the original author of a name, it may often be possible to say with certainty that certain specimens were examined by him. These will include specimens that he figures and any that he indicates by whatever method that he has examined (the mark of exclamation was often used for this purpose by early zoologists), e.g. by giving measurements or by other internal evidence of citation of individual specimens as such. It is suggested that the "type-series" be given a restricted definition on these lines, so that Article 72b might read, for example:

"(b) **Type-series.**—The type-series of a species consists of all the specimens that can be certainly identified as having been examined by the author when he made the specific name available, and of no other specimens, and excludes any that he refers to as variants, or doubtfully associates with the nominal species, or expressly excludes from it.

(i) The only specimens eligible for inclusion in the type-series are those figured by the author and those that he indicates, by whatever method, that he has individually examined."

6. While the above draft might prove helpful in a large number of cases, it might not be acceptable to zoologists who have to deal with cases where later specimens have been added to original specimens in a single container (see, e.g. Whitehead and Boeseman, *Bull. zool. Nomencl.* 23 : 110–113; and many applications to the Commission concerning Linnean types). The effect on cases of this kind might well be to force recourse to a neotype; but at least an element of clarity would have been added to the situation.

7. If Article 72b were to be rewritten on these lines, then certain amendments would need to be made to Article 73c. In the second line a cross-

reference to "[Art. 72(b)]" should be inserted. In Article 73c(i) a full point should be inserted after "term" in the second line and the subsequent part deleted. Recommendation 73D should also be deleted: paratypes may be helpful in explaining the original hypodigm, but they have no function as name bearers except insofar as they implicitly form part of the type-series as here redefined. Even then, their potential utility would only be realized in the event of the loss or destruction of the holotype. It may often be just as difficult to identify all the paratypes of a nominal species based on a designated holotype as it is to identify all the syntypes of a nominal species not based on one.

8. It is doubtful whether Recommendation 74E should remain in the Code. With the best will in the world, Article 72b as redrafted is open to an element of subjective interpretation; Recommendation 74E merely indicates how a zoologist should record his opinion about the original hypodigm, and this is not strictly a nomenclatural matter.

9. The next problem is the procedure to be laid down in cases where a holotype or lectotype is destroyed but specimens of the type-series (as redefined) still exist. What is to be the status of such specimens? In my view, they have no greater importance as potential name-bearers than any other specimen of the current hypodigm of the species, whatever may be their historical value as indicating the shape of the original hypodigm. It is implicit in the present Code (Article 75) that such specimens are potential neotypes. It would seem sufficient to me to make this explicit by adding a Recommendation to the effect that a neotype should, other things being equal, be designated from among surviving specimens of the type-series, if such exist. No narrower restriction ought to be placed on the freedom of a zoologist to designate a neotype that meets the requirements of current taxonomic thought and practice.

10. In his proposals to the Commission for relaxation of the rules concerning neotypes, Mr. dos Passos objected to the subjective character of the words "revisory work" and proposed to replace them by the words "scientific paper"—though it is doubtful if they are any less subjective. In addition, Article 75 as it stands is internally inconsistent. The opening sentence says that a neotype may be designated if no holotype, lectotype or syntype exists; Article 75c(3) requires the author to believe all the specimens of the original type-series to have been lost or destroyed—that is, including paratypes and paralectotypes not referred to in the opening sentence. Moreover, if surviving syntypes, paratypes and paralectotypes are to be given no more nomenclatural status than any other specimens of the current hypodigm, it is not necessary to refer to any of them in this article. A neotype is one unique name-bearer proposed to replace another unique name-bearer that has been lost or destroyed. It should not be necessary to consider any specimens other than the lost name-bearer as having a higher status than any others.

11. These difficulties, as well as Mr. dos Passos's point, could perhaps be met if Article 75a and 75a(i) were united in a single paragraph and if Article 75c(3) were amended, as follows:

"(a) **Cases admitted.**—A neotype is only to be designated when such action is found to be necessary in the interests of stability of nomenclature, for example, when the identity of a species, or of two or more closely

similar species, is in doubt and when for any of them no holotype or lectotype exists."

"(c) **Qualifying conditions.**—

(3) the author's reasons for believing the holotype or lectotype to be lost or destroyed, and the steps that have been taken to trace it;"

The Glossary definition of neotype should at the same time be amended to read:

neotype, n. A single specimen designated as the type-specimen of a nominal species-group taxon of which the holotype or lectotype has been lost or destroyed [Art. 75]."

12. There remains the problem of holotypes, lectotypes or neotypes that are demonstrated to be taxonomically useless. This is clearly a subjective matter of taxonomic judgment that cannot be dealt with by regulation in the Code. In effect, a zoologist faced with this problem has two possible courses of action. He may either reject the name in question because it has become a *nomen dubium* for his purposes, and propose a new name for the species; or he may seek means, possibly involving an application for the use of the plenary powers by the Commission, to give the name a new validity. The concept of the unchanging type would indicate the former procedure; the objective of nomenclatural stability would indicate the latter. To my mind the latter, even though it may involve the zoologist in more work, is to be preferred. If this view is generally accepted, then a new Recommendation could be added at the end of Article 75 on the following lines:

"**Type found to be taxonomically useless.**—A zoologist who subjectively considers the type of a nominal species to be taxonomically useless should, in the interests of stability of nomenclature, seek means to renew the validity of the name in preference to rejecting it as a *nomen dubium*."

13. Comments on these proposals received within six months after the date of publication will be taken into account in submitting a draft Declaration to the Council of the Commission.